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January 9, 2001

Dorothy Attwood, Esq.
Chief, Common Carrier Bureau
Federal Communications Commission
Room 5-C450
445 12th St., SW
Washington, DC 20554

Re: December 22, 2000, ex parte in CC Docket No. 99-68

Dear Ms. Attwood:

In a recent ex parte, the ILECs made clear that their litmus test as to whether the Common Carrier Bureau's proposed revisions to the ILEC reciprocal compensation obligations are acceptable is whether there is an absolute reduction in the level of payments they are required to pay in any transition period. In an effort to demonstrate that the Common Carrier Bureau's current proposal does not pass that test, the ILECs in their December 22, 2000 ex parte rely on totally unsupported calculations. In order to cloak the substantial reductions that will result from the proposal, the ILECs use a totally unsupported assumption of a 42% increase in Internet usage annually between 1999 and 2003.

There is no need for the Commission to rely upon speculation concerning the projected growth rates of Internet usage. Reputable authorities have issued public estimates of such usage patterns, estimates that flatly contradict the ILECs' self-serving assumption. Merrill Lynch uses a 7% estimate of annual increased Internet usage per user during this time period,¹ and PricewaterhouseCoopers' recently issued a study concluding that Internet usage per user in the United States actually declined by over

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¹ Merrill Lynch, Internet/e-Commerce, *The Quarterly Handbook: Q3 2000*, July, Chart 47, p. 120.

20% from 1999 to 2000 because of "the medium's maturity."² This critical issue, as well as other defects in the ILECs' spreadsheet calculations, are discussed in more detail below. In fact, the Bureau's proposal, using corrected data for the Scenario 1 ratios, would result in a 95% decrease in reciprocal compensation payments from 2000 to 2003. The CLEC proposal would result in an 84% decrease in the same period under Scenario 1.

The ILEC's 42% annual growth rate for Internet usage is utterly unfounded

The Commission need not judge between dueling speculations to learn the truth about the likely average growth rate for Internet usage in the United States over the next few years. As several ex partes from the competitive industry have previously noted, Merrill Lynch utilizes a 7% annual growth rate to predict approximately 10.25 hours of weekly Internet usage by 2003. Merrill Lynch, Internet/e-Commerce, *The Quarterly Handbook: Q3 2000*, Chart 47, p 120. And even this growth rate may be overstated according to a recent PricewaterhouseCoopers Study, which found that the "average U.S. Internet user was online 4.2 hours a week, down from 5.3 hours last year. December 28th WSJ, citing November 1st PricewaterhouseCoopers release.

These are the numbers and predictions used by national authorities concerning Internet usage in the United States. The ILECs make no mention of these authorities in their lengthy December 22nd defense. Instead, they offer only speculation and analogies in support of their figure.³ The silence of the ILECs concerning the pronouncements of independent authorities is sufficient by itself to deprive their efforts of any persuasiveness. But a short response here will underscore the utter lack of factual foundation for the ILECs' 42% annual Internet growth claim.

First, the ILECs claim that the growth rate in reciprocal compensation billings, which they calculate at 58% from 1999 to 2000 (*id.* at 5) supports their 42% annual Internet usage growth rate.⁴ This is nonsense. Changes in the amounts of reciprocal compensation paid by ILECs to CLECs from year-

² December 28th WSJ, citing November 1st PricewaterhouseCoopers release. Appended as Attachment A.

³ The ILECs assert only that: " ... there are no definitive or dispositive sources of Internet growth forecasts. The medium is simply too new and evolving too rapidly to forecast growth rates precisely" (December 22nd ex parte at 4-5).

⁴ The ILECs also point to the annual increase in WorldCom reciprocal compensation when making this point.

to-year are largely driven by rapidly-growing CLECs winning over existing ISPs along with the existing Internet traffic of those ISPs, and only tangentially by changes in the Internet usage of customers of ISPs that are already served by CLECs. Simply put, current changes in reciprocal compensation payments are largely driven by how the pie is being sliced, and proves nothing about whether the pie is growing or shrinking. One might as well claim that knowledge of the annual changes in market share for the major domestic automobile manufacturers and importers would permit the calculation of the annual change in overall domestic auto purchases.⁵

Second, the ILECs speculate about "the growing popularity of new service applications, like video streaming and audio and game file sharing now available through Napster and its many clones" (*id.* at 5, citing to a May 24, 2000 report by Tim Horan). Obviously, this sort of speculation falls short of the "detailed catalogue of our data sources" which the ILECs purport to supply in their December 22nd filing.

Even more significantly, the ILECs are relying on comments made nine months ago at the height of market excitement concerning the Internet. Contemporary opinion is much more sober (PricewaterhouseCoopers release of November 1, 2000, at p. 1; Attachment B):

"In the U.S., Australia, U.K., France and Germany: Consumers are embracing the Web, but demanding value. Taking a cue from high-tech investors who have ceased to spend freely on the latest innovations, online consumers around the world have adopted a more cautious approach to the consumption of entertainment and media technologies."

"Whither entertainment on the Net? The survey show marked differences in attitudes. Just over half of all Americans – and more than 40 percent of the French, Britons, Germans, and Australians –

⁵ Furthermore, the ILECs' calculation of the growth in reciprocal compensation payments generates numbers that are completely inconsistent with numbers contained in their *ex parte*. Telecordia's calculation of billed MOUs sent to the CLECs for the Tier 1 ILECs in 1999 and 2000 is 250 and 397 trillion, respectively (*see* attachment to the December 22nd *ex parte*). Assuming the smaller ILECs not included in the Telecordia calculation represent 20% of total lines, and pay the same level of reciprocal compensation per line as the Tier I ILECs (and this is hardly the case because they constitute more rural carriers that have generally refused to interconnect with CLECs), these numbers would become approximately 300 trillion minutes in '99 and 476 trillion minutes in '00, 28% and 32% below the numbers shown for these same years in the ILEC spreadsheet (383 trillion and 629 trillion). Thus, Telecordia's calculation also discredits the ILEC predictions.

mentioned entertainments, such as playing games or downloading music, as a reason for accessing the Internet. But when asked if entertainment was their *primary* reason for going online, the numbers dropped off the radar: only six percent in the U.S., four percent in Europe, and two percent in Australia.”

“The recent failures of online entertainment companies such as DEN, pop.com, Pseudo and Scour demonstrate that the business models for online entertainment are not fully developed,’ said Carton [Kevin Carton, Global Leader of PricewaterhouseCoopers Entertainment & Media Practice]. ‘While we’re beginning to see some successful formats, there is still a long way to go before there is synchronicity among the right content, at the right bandwidth over the right interface. Only then will Internet entertainment achieve its potential and create meaningful new revenue streams for Hollywood’.”

Similarly, the end of free Internet services, and the recent settlement of Napster with the entertainment industry would also undercut the ILECs claims.⁶

Third, the ILECs point to the 3% month-to-month increase in October 2000 Internet usage found by Media Metrix to support their 42% growth rate (December 22nd *ex parte* at 3-4). But the pages attached by the ILECs show that monthly usage actually decreased in three of the prior six months, suggesting considerable volatility that hardly justifies projection of one month’s growth rate (a fact underscored by the attachment’s own comment that: “Media Metrix is not completely accurate ...”).

Speculation about growth rates is also unnecessary to generate Internet usage numbers for 2000. Using PricewaterhouseCoopers estimate of 4.2 hours of Internet usage per week and the ILECs’ own number of 91M users, there were 1.192464 trillion minutes of Internet usage in the United States last year, i.e., 18% less than the ILECs’ estimate.

Households with broadband Internet access use the Internet more

Nowhere in their eight-page defense do the ILECs dispute the common-sense fact that Internet users with broadband access tend to use the Internet more than users with only dial-up access. Indeed, the ILECs would be hard-pressed to deny this, since the very data they rely upon demonstrates this effect, as both AT&T and the CLECs have pointed out in *ex partes*.

⁶ See New York Times Business Section, January 2, 2001, p. 1.

Because broadband users use the Internet disproportionately, this fact must be reflected when calculating the amount of broadband Internet minutes to be subtracted from total Internet minutes in order to determine dial-up Internet minutes. Obviously, using only the percentage share of broadband Internet subscriptions to make this calculation would fail to reflect the differential usage, since use of the percentage split by subscription implicitly assumes that one percent of broadband subscriptions generates the same minutes as one percent of dial-up accounts. Accordingly, both AT&T and the CLECs showed how this modification should be performed.⁷

Amazingly enough, the ILECs not only continue to use their invalid subscription approach in their defense, they assert that AT&T and the CLECs do not object to their approach. This is defense by denial, not by fact or logic.

The ILECs now pretend there will be no further reductions in reciprocal compensation rates

When the ILECs first submitted their spreadsheet analysis on October 12, 2000, they assumed that that reciprocal compensation rates would decline from \$0.004/MOU in 2000, then to \$0.00275/MOU in 2001, and then to \$0.0015/MOU in 2002. But these projections have simply evaporated from the ILECs' current spreadsheet, which assumes a constant \$0.004/MOU rate.

The ILECs never mention why their earlier analysis contained declining rates. Instead, they assert only that: "The logic behind doing so [referring to their current use of a constant \$0.004/MOU rate] is that neither in the current regime nor one in which the CLECs continue to receive reciprocal compensation during a transition would the CLECs have an incentive to negotiate or agree upon further reductions in reciprocal compensation rates" (December 22nd ex parte at 7). However, if no "incentive" exists, how do the ILECs explain the settlements achieved between BellSouth and e.spire, Verizon and Level 3, and SBC and ICG? Furthermore, even if no incentive to settle existed, the arbitration process remains in place, and the plain fact (which the ILECs refuse to acknowledge), is that arbitrations have reduced reciprocal compensation rates dramatically.

⁷ See AT&T ex parte of December 1, 2000, and AT&T ex parte of November 28, 2000, citing Cahner In-Stat Group, *Report No. IS00-01SP, Residential ISP Buying Behavior and Internet Usage Trends: A Survey of U.S. Consumers*, Jan-00, Charts 24 & 27.

The suppressive effects of a cap on reciprocal compensation are ignored by the ILECs

Another puzzling and unexplained aspect of the ILECs' spreadsheet is its assumption that the CLECs will continue to increase their market share of dial-up Internet no matter what limitations are placed on reciprocal compensation. CLECs would have no incentive to increase their market share in a market with declining or non-existent incremental margins. Assuming they would continue to approach this market in the future as they have in the past is assuming that CLECs would not alter their behavior in response to a profound change in market incentives. This is obviously unfounded.

Above-cost reciprocal compensation does not preclude fair market competition

The ILECs also claim that the CLECs' success in winning ISP traffic is not legitimate because the CLECs supposedly can offer deals to ISPs using revenue from above-cost reciprocal compensation that the ILECs cannot match. This is just not correct. Even if CLECs did enjoy the incentive of above-cost reciprocal compensation when trying to win an ISP's traffic in a particular area from an ILEC, the ILEC currently serving that ISP is confronted with an economic incentive of exactly the same size: avoiding having to pay above-cost reciprocal compensation by retaining the ISP's business. If the ILECs have failed to respond to this incentive, it is strictly the result of their own business decisions, and not the result of asymmetric economic incentives.

Conclusion

We have taken care in this filing to expose the defects of the ILECs' spreadsheet because the ILECs are using it in their effort to destroy the CLECs' legitimate success in serving the Internet dial-up market. In order to best illustrate the effect of the ILECs' errors, we are also attaching two spreadsheets to this filing. The first makes four corrections to the ILECs' spreadsheet: (1) substitution of the 7% Merrill Lynch annual growth rate for the ILECs' 42% rate; (2) correction for the fact that households with broadband access use the Internet more than households with just dial-up access; (3) holding CLEC market share of dial-up minutes constant from 2000 through 2003; and (4) substitution of the ILECs' own prediction that reciprocal compensation rates will decline to \$0.00275/MOU in 2001, and then to \$0.0015/MOU in 2002 and beyond (see the ILECs' original October 12, 2000, filing).

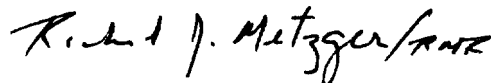
Contrary to the predictions in the ILECs' December 22nd filing that the 12:1, 8:1, and 4:1 caps would reduce payments to \$2417M, \$2407M and \$1550M in 2001 through 2003, the corrected spreadsheet shows that those payments would actually be \$943M, \$354M, and \$94M in each of those years, resulting in a 95% reduction in payments from 2000 to 2003.

The second spreadsheet is equally important. It makes the same four corrections as the first, and applies the results to the proposed CLEC transition plan, which retains the ratios proposed by the Bureau, but applies a reduced rate to above-ratio traffic (reduced by 20% in 2001, 35% in 2002, and 50% in 2003). Under the CLEC plan, reciprocal compensation payments by the ILECs would drop to \$1321M in 2001, \$641M in 2002, and \$315M in 2003, producing an 84% reduction from 2000 to 2003.

As explained in the December 28th ex parte submitting the competitive transition plan, any significant revision of the current reciprocal compensation must be accompanied by a transition that avoids revenue shock to the competitive industry. The two attached spreadsheets demonstrate vividly that the current Bureau proposal would impose undue financial harm on CLECs in comparison with the competitive alternative.

Please let us know if we can provide you with any other information on this important topic.

Sincerely,



Attachments

cc: Glenn Reynolds
Jane Jackson
Tamara Preiss
Rodney McDonald
Kathy Brown
Anna Gomez
Jordan Goldstein
Rebecca Beynon
Deena Shetler
Kyle Dixon

Potential Cost of Reciprocal Compensation for Terminating Internet Traffic
Four corrections are made to the ILECs' 12/22 original

	1999	2000	2001	2002	2003	Avg. Ann. Growth	
Residential Internet Usage Forecasts							
Total US households (000s)	103,900	105,000	106,400	107,700	109,000	1.25%	
U.S. Online Households (000s)	43600	47300	51400	56900	62500	9.73%	
% penetration	42%	45%	48%	53%	57%		1. Corrected Internet growth rate
Avg Minutes of Access Per On-Line HH Per Day	63	67	72	77	83		
Avg Minutes of Access Per On-Line HH Per Day	22,888	24,529	26,288	28,173	30,288		2. Corrected for higher broadband use
Total Internet Access Minutes – Residential	997,916,800,000	1,160,221,700,000	1,351,203,200,000	1,603,043,700,000	1,893,000,000,000	7%	
% Broadband (xDSL, Cable modems, wireless)	4%	12%	20%	29%	36%		
% Dial Up	96%	88%	80%	71%	64%		
Ratio Broadband/Dial-up Use/line	1.25	1.25	1.25	1.25	1.25		3. Corrected CLEC response to caps
Dial-up Minutes/Dial-up Household	22659	23809	25026	26253	28224		
Dial Up Internet Access Minutes	948,415,104,000	991,025,816,000	1,029,069,120,000	1,060,594,947,000	1,128,960,000,000		
% of Dial Up Internet Access Minutes that CLECs terminate	40%	50%	50%	50%	50%		4. Rate reduced to \$0.00275 in '01 and \$0.0015 in '02 and '03
Dial Up Internet Access Minutes Terminated by CLECs	379,366,041,600	495,512,908,000	514,534,560,000	530,297,473,500	564,480,000,000		
ILEC Reciprocal Compensation Liability Scenarios – With a Constant Recip Comp Rate of \$.004/Min.							
Scenario 1: Cap That Produces Constant Recip Comp Payments							
Cap on Terminating to Originating Minutes			12:1	8:1	4:1		
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	343,023,040,000	235,687,766,000	125,440,000,000			
Total Recip Comp Payments	\$1,982,051,632	\$ 943,313,360	\$ 353,531,649	\$ 94,080,000			
Year-to-year percentage reduction in recip comp payments to CLECs		52%	63%	73%			Effect of four corrections
Scenario 2:							
Cap on Terminating to Originating Minutes			6:1	4:1	2:1		
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	171,511,520,000	117,843,883,000	62,720,000,000			
Total Recip Comp Payments	\$1,982,051,632	\$ 471,656,680	\$ 176,765,825	\$ 94,080,000			
Year-to-year percentage reduction in recip comp payments to CLECs		76%	63%	47%			
Scenario 3:							
Cap on Terminating to Originating Minutes			5:1	3:1	2:1		
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	142,926,266,667	88,382,912,250	62,720,000,000			
Total Recip Comp Payments	\$1,982,051,632	\$ 393,047,233	\$ 132,574,368	\$ 94,080,000			
Year-to-year percentage reduction in recip comp payments to CLECs		80%	66%	29%			
Scenario 4:							
Cap on Terminating to Originating Minutes			4:1	2:1	Bill and Keep		
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	114,341,013,333	58,921,941,500	0			
Total Recip Comp Payments	\$ 1,982,051,632	\$ 314,437,787	\$ 88,382,912	\$0			
Year-to-year percentage reduction in recip comp payments to CLECs		84%	72%	100%			
Scenario 5:							
Cap on Terminating to Originating Minutes			3:1	Bill and Keep	Bill and Keep		
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	85,755,760,000	0	0			
Total Recip Comp Payments	\$ 1,982,051,632	\$ 235,828,340	\$0	\$0			
Year-to-year percentage reduction in recip comp payments to CLECs		88%	100%	100%			

Sources:

Total US Huseholds (000s)	Sanford Bernstein & Co and McKinsey & Co, <i>BroadbandI</i> , Jan. 2000
U.S. Online Households (000s)	Sanford Bernstein & Co and McKinsey & Co, <i>BroadbandI</i> , Jan. 2000
Avg Minutes of Access Per On-Line HH Per Year	Nielsen 9/14/00 Press Release: Cahners 3/28/00; Thomas Weisel Partners, <i>Media Matrix's July Internet Usage Trends</i> , 8/23/00
% Broadband (xDSL, Cable modems, wireless)	Dean Witter Morgan Stanley, <i>The Broadband Report Reaping What You Sow: ROI in the Broadband Market</i> , May 2000
% of Dial Up Internet Access Minutes That CLECs Terminate	ALTS Press Release

For Comparable Forecasts See Also:

U.S. Online Households (000s)	Dean Witter Morgan Stanley, <i>The Broadband Report Reaping What You Sow: ROI in the Broadband Market</i> , May 2000
% Broadband (xDSL, Cable modems, wireless)	Hoad Breedlove Wesneski & Co., <i>The Last Race for the First Mile</i> , 8/2/00

Potential Cost of Reciprocal Compensation for Terminating Internet Traffic
Four Corrections are made to the ILECs' 12/22 original, and applied to the CLECs' proposed transition plan

	1999	2000	2001	2002	2003	Avg. Ann. Growth
Residential Internet Usage Forecasts						
Total US households (000s)	103,900	105,000	106,400	107,700	109,000	1.25%
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Avg Minutes of Access Per On-Line HH Per Day	63	67	72	77	83	
Avg Minutes of Access Per On-Line HH Per Day	22,888	24,529	26,288	28,173	30,288	
Total Internet Access Minutes – Residential	997,916,800,000	1,160,221,700,000	1,351,203,200,000	1,603,043,700,000	1,893,000,000,000	7%
% Broadband (xDSL, Cable modems, wireless)	4%	12%	20%	29%	36%	
% Dial Up	96%	88%	80%	71%	64%	
Ratio Broadband/Dial-up Use/line	1.25	1.25	1.25	1.25	1.25	
Dial-up Minutes/Dial-up Household	22659	23809	25026	26253	28224	
Dial Up Internet Access Minutes	948,415,104,000	991,025,816,000	1,029,069,120,000	1,060,594,947,000	1,128,960,000,000	
% of Dial Up Internet Access Minutes that CLECs terminate	40%	50%	50%	50%	50%	
Dial Up Internet Access Minutes Terminated by CLECs	379,366,041,600	495,512,908,000	514,534,560,000	530,297,473,500	564,480,000,000	

1. Corrected Internet growth rate

2. Corrected for higher broadband use

3. Corrected CLEC response to caps

4. Rate reduced to \$0.00275 in '01 and \$0.0015 in '02 and '03

Effect of four corrections

ILEC Reciprocal Compensation Liability Scenarios –
With a Constant Recip Comp Rate of \$.004/Min.

Scenario 1: Cap That Produces Constant Recip Comp Payments

Cap on Terminating to Originating Minutes		12:1	8:1	4:1
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	343,023,040,000	235,687,766,000	125,440,000,000
Dial-Minutes that Qualify for reduced above-cap rate		171,511,520,000	294,609,707,500	439,040,000,000
Total Recip Comp Payments	\$1,982,051,632	\$ 1,320,638,704	\$ 640,776,114	\$ 315,037,281
Year-to-year percentage reduction in recip comp payments to CLECs		33%	51%	51%

Scenario 2:

Cap on Terminating to Originating Minutes		6:1	4:1	2:1
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	171,511,520,000	117,843,883,000	62,720,000,000
Dial-Minutes that Qualify for reduced above-cap rate		343,023,040,000	412,453,590,500	501,760,000,000
Total Recip Comp Payments	\$1,982,051,632	\$ 1,226,307,368	\$ 726,212,929	\$ 548,800,000
Year-to-year percentage reduction in recip comp payments to CLECs		38%	41%	24%

Scenario 3:

Cap on Terminating to Originating Minutes		5:1	3:1	2:1
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	142,926,266,667	88,382,912,250	62,720,000,000
Dial-Minutes that Qualify for reduced above-cap rate		371,608,293,333	441,914,561,250	501,760,000,000
Total Recip Comp Payments	\$1,982,051,632	\$ 1,210,585,479	\$ 563,441,066	\$ 470,400,000
Year-to-year percentage reduction in recip comp payments to CLECs		39%	53%	17%

Scenario 4:

Cap on Terminating to Originating Minutes		4:1	2:1	Bill and Keep
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	114,341,013,333	58,921,941,500	0
Dial-Minutes that Qualify for reduced above-cap rate		400,193,546,667	471,375,532,000	0
Total Recip Comp Payments	\$ 1,982,051,632	\$ 794,670,043	\$ 547,974,056	\$0
Year-to-year percentage reduction in recip comp payments to CLECs		60%	31%	100%

Scenario 5:

Cap on Terminating to Originating Minutes		3:1	Bill and Keep	Bill and Keep
Dial-Minutes that Qualify for Recip Comp Payments	495,512,908,000	85,755,760,000	0	0
Dial-Minutes that Qualify for reduced above-cap rate		428,778,800,000	530,297,473,500	564,480,000,000
Total Recip Comp Payments	\$ 1,982,051,632	\$ 1,179,141,700	\$0	\$0
Year-to-year percentage reduction in recip comp payments to CLECs		41%	100%	100%

Sources:

Total US Households (000s)
U.S. Online Households (000s)
Avg Minutes of Access Per On-Line HH Per Day
% Broadband (xDSL, Cable modems, wireless)
% of Dial Up Internet Access Minutes That CLECs Terminate

Sanford Bernstein & Co and McKinsey & Co, *Broadband!*, Jan. 2000
Sanford Bernstein & Co and McKinsey & Co, *Broadband!*, Jan. 2000
Nielsen 9/14/00 Press Release: *Cahners 3/28/00*; Thomas Weisel Partners, *Media Matrix's July Internet Usage Trends*, 8/23/00
Dean Witter Morgan Stanley, *The Broadband Report Reaping What You Sow: ROI in the Broadband Market*, May 2000
ALTS Press Release

For Comparable Forecasts See Also:

U.S. Online Households (000s)
% Broadband (xDSL, Cable modems, wireless)

Dean Witter Morgan Stanley, *The Broadband Report Reaping What You Sow: ROI in the Broadband Market*, May 2000
Hoad Breedlove Wesneski & Co., *The Last Race for the First Mile*, 8/2/00



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December 28, 2000

Tech Center

Broadband Carriers May Face Shakeout Amid the Tech Slump

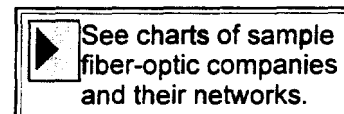
By MARK HEINZL

Dow Jones Newswires

For big phone and data carriers, getting the money to build high-capacity fiber-optic networks crisscrossing the globe was the easy part. Now, the hard part is finding enough paying customers to produce profits.

Over the last few years investors eagerly threw tens of billions of dollars at a group of young companies laying fiber cables across the Americas, Europe and Asia. But these companies haven't been spared in the recent tech bloodbath, as many of their stocks have crumbled to well below half their levels of earlier this year.

Investors' amazement over the promise of fat pipes delivering Internet music, video and other applications has been replaced by a sober analysis of the network operators' ability to generate substantial revenue and earnings and pay back their often huge debt.



"There is an incredible amount of capacity coming on as these networks complete their buildouts" over the next six to 12 months, says John Page, who follows these so-called broadband carriers as a senior analyst with Moody's Investors Service in New York. Whether the flood of new capacity will swamp demand or be rapidly absorbed by new Internet applications is "a complete conundrum" the industry is grappling with, he says.

Many of the companies building large fiber-optic networks are running substantial losses even as their revenue grows quickly. These companies -- which include **Global Crossing Ltd.**, Hamilton, Bermuda; **Level 3 Communications Inc.**, Broomfield, Colo.; **360networks Inc.**, Vancouver, British Columbia; and **Williams Communications Group Inc.**, Tulsa, Okla. -- are targeting big corporations, other big data and phone

carriers, Internet service providers and regional phone companies as customers. They generally offer bandwidth, or data-carrying capacity, as well as related network services such as computer-server management.

Some fear the massive installation of fiber-optic networks around the world has haunting similarities to the dawn of the railroad age over 150 years ago. Investors lined up to finance upstart railroad companies laying track every which way, often overlapping with competitors' lines or going places with no economic justification, while share prices in the new companies skyrocketed. Those shares later plummeted as many railroad companies collapsed in the 1870s, unable to pay back their obligations. The industry survived, of course, but first endured a painful contraction.

Adding to the skeptics' concerns are signs that Internet traffic may not be growing as robustly as some believe. A recent survey by PricewaterhouseCoopers found the average U.S. Internet user was online 4.2 hours a week this year, down from 5.3 hours last year. The firm cited "the medium's maturity."

Further, while industry analysts and executives often state that Internet traffic is doubling every three or four months, a researcher at AT&T Corp.'s research division disputes that claim. Andrew Odlyzko, head of mathematics and cryptography at AT&T Labs, says his recent studies of commercial and academic networks indicate traffic is doubling about every year. That is still substantial, but not the furious pace many believe.

"I suspect there will be a shakeout," among broadband carriers, Mr. Odlyzko says. Rapidly improving optical technology means a single fiber strand can handle ever-increasing amounts of data, reducing the need for carriers to have many fiber lines, he notes. And although Mr. Odlyzko believes that over the long term there will be enough bandwidth-hungry applications, such as downloadable movies, to put supply and demand of bandwidth roughly in balance. He says the "big question" for the nearer term is "will there be enough revenue?"

"At some stage Wall Street will start asking: Can you really pay back the investment?" he says. Worries are already increasing: Yields on debt issued by some broadband carriers have climbed several percentage points in recent months, recently reaching 15% and higher, as prices on the securities have fallen.

Meanwhile, prices for the broadband carriers' main product, bandwidth, are plummeting. Susan Kalla, a telecom analyst with the securities firm Bluestone Capital in New York,

says she recently surveyed several bandwidth brokers and found prices for transmitting data between New York and London have sunk 45% over the past six months or so, and are forecast to drop a further 65% next year. "New carriers have lower cost structures than their predecessors, which allows them to break even on plummeting price, but for how long?" Ms. Kalla writes in a recent report, adding that she thinks the industry will undergo consolidation. "I think there's a lot more pain" to come for carriers, she says in an interview.

PSINet Inc. is one company that has already felt the pain. Shares of the Ashburn, Va., international Internet service provider have collapsed to below \$1 from above \$50 early this year. The company announced a wider-than-expected loss for the third quarter, and said it is seeking to sell assets and reduce capital spending. PSINet Chairman and Chief Executive Officer William L. Schrader said in a release, "Current market conditions are quite challenging, as the slowdown in Internet spending becomes more apparent every day."

Others are struggling as well. Shares of **RCN Corp.**, the Princeton, N.J., residential broadband provider, continued their downward spiral last week when the company announced wider-than-expected anticipated losses and reined in its building plans. Shares of wireless broadband providers **Teligent**, Vienna, Va., and **Winstar Communications Inc.**, New York, have also fallen this year amid continued losses.

Still, other players say the future looks bright. 360networks, for example, recently forecast cash flow from operations of \$2.5 billion to \$2.6 billion for next year, more than 40% above analysts' expectations, and cited "tremendous interest" in its network services. The news has done little for the company's stock price, however, which remains below its April IPO level of \$14.

Carriers are betting that steadily increasing numbers of high-speed Internet users tapping into a host of high-bandwidth applications will eat up, and pay for, all the new bandwidth.

"The killer [application] that we're identifying right now is Napster" Inc., the online music exchange, says Ford Cavallari, executive vice president of Boston telecom research firm Adventis Corp. Napster alone accounts for 3% to 4% of Internet traffic, he estimates, and users often sign up for high-speed Internet access primarily for Napster. "All you need is a couple dozen [applications like Napster], and all of a sudden you have no bandwidth" excess, Mr. Cavallari says.

Napster's service, however, remains free of charge, and it remains to be seen what will happen if they begin to charge. Mr. Cavallari says he expects online music and movie services like Napster will evolve into successful pay-per-use businesses, as long as the quality is high. The popularity of Napster-like services is a key reason that Adventis, which had long predicted an oncoming bandwidth glut, recently changed its view. It is now projecting that the supply of bandwidth will be in line with demand.

MASSIVE FIBER-OPTIC DEPLOYMENT

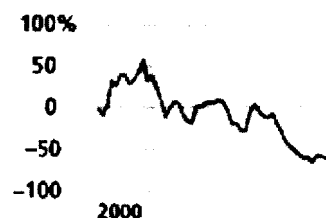
Sample fiber-optic companies and their networks

Level 3 Communications

Headquarters:
Broomfield, Colo.

Currently building:
16,000-mile network connecting 150 U.S. cities and 4,700-mile European intercity network, with links across the Atlantic, and a Pacific link to Tokyo and Hong Kong.

Percent change in stock since Dec. 31, 1999

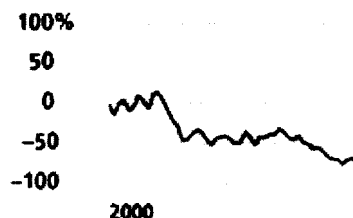


Global Crossing

Headquarters:
Hamilton, Bermuda

Currently building:
20,000-mile North American network, 15,500-mile European network, 11,600-mile East Asian network, 10,000-mile South American network, with links across the Pacific and Atlantic oceans and from North America to South America.

Percent change in stock since Dec. 31, 1999

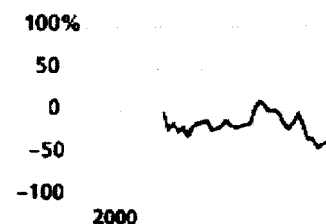


360networks

Headquarters:
Vancouver, B. C.

Currently building:
An 88,000-mile network, connecting the major cities in North America, South America, Europe and Asia with links across the Atlantic and Pacific and from North America to South America.

Percent change in stock since Dec. 31, 1999

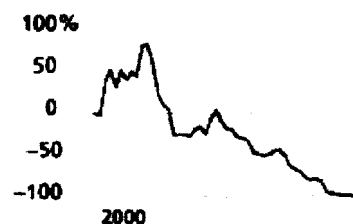


PSINet

Headquarters:
Ashburn, Va.

Currently building:
A network spanning North America, South America, Europe, East Asia and Australia, with links across the Atlantic, Pacific and from North America to South America.

Percent change in stock since Dec. 31, 1999



Sources: WSJ research, Baseline

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***2000 PRICEWATERHOUSECOOPERS
FIVE COUNTRY CONSUMER TECHNOLOGY SURVEY REVEALS:***

- Consumers Show Little Interest In Internet As An Entertainment Medium
- Web Access In The Home Still Primarily For Email And Information
- More Consumers Plan To Purchase DTV

NEW YORK, November 1, 2000 – “Just the facts, please.” That’s what online consumers are saying, according to the five country *2000 PricewaterhouseCoopers Consumer Technology Survey* released today. The results show that about 9 out of 10 home Internet users overall are researching information or sending or receiving email. A smaller number of consumers are looking to the Web for their entertainment needs.

When asked their reasons for accessing the Internet from home, 51 percent of Americans mentioned entertainment, such as playing games or streaming music, compared to 42 percent in Australia, 45 percent in the UK, 46 percent in France and 40 percent in Germany. However, the number of entertainment mentions dropped drastically when consumers were asked their primary reasons for going online: 6 percent in the U.S., 2 percent in Australia and 4 percent in Europe.

“The Internet still has a primary purpose for consumers – to help them get things done. In order to make it a viable alternative source for entertainment, broadband access must increase in hand with more compelling content. Until then, TVs and stereos will remain separate entities from PCs in the home,” said Kevin Carton, Global Leader of PricewaterhouseCoopers Entertainment & Media Practice.

The fourth annual study surveys consumers in the U.S., UK, France, Germany, and for the first time, Australia. A total of 2500 consumers were surveyed across the five countries (approximately 500 adults in each country) in late summer 2000.

-more-

Inter-tainment

Roughly one-quarter of those surfing the Net in Europe and the U.S. download music from the Internet, which is a negligible year-to-year change. The percentage for Australia also stands at 25 percent. While three quarters of consumers who download or stream music feel it is easy to do, most of them would also cease to do so if they had to pay for each recording – 75 percent in the U.S., 70 percent in Australia and 63 percent in Europe. The majority of these consumers say that accessing music online has exposed them to new artists or new types of music. Additionally, 77 percent of Americans, 78 percent of Australians and 54 percent of Europeans say that doing so has prompted them to go out and buy a particular CD or tape.

While music has made a splash in the online world, the Internet has yet to threaten conventional cinema or TV. Half as many Internet users are downloading or streaming videos and short films compared to music – approximately 12 percent - no threat studios or broadcasters. Very few consumers believe that downloading videos and short films via the Internet is as satisfying as watching them on TV and only a handful feel it has replaced the need to go to the cinema. Like music, more than half of Internet users that stream videos or short films say it would end if they had to pay for each download.

“The recent failures of online entertainment companies such as DEN, pop.com, Pseudo and Scour demonstrate that the business models for online entertainment are not fully developed,” said Carton. “While we’re beginning to see some successful formats, there is still a long way to go before there is synchronicity among the right content, at the right bandwidth over the right interface. Only then will Internet entertainment achieve its potential and create meaningful new revenue streams for Hollywood.”

Europeans, in general, are more likely to use the Net at home for online banking and investing than are Americans and Australians (37 percent vs. 28 percent). The online banking numbers for the UK and France doubled from 1999, both reaching just over 30 percent. More Europeans, particularly Germans and Britons (42 percent each), are using the Internet to shop from home this year. This figure is now comparable to the U.S. Only 27 percent of Australians and 18 percent of the French are logging on to shop from home.

Access in Excess

Internet access in the home has increased substantially since 1999 in all countries except the U.S. However, even with these increases, more American consumers (44 percent) continue to access the Internet than their Australian (38 percent) or European counterparts (31 percent in UK, 31 percent in Germany and 16 percent in France). Internet access in Germany saw the biggest change this year, increasing 72 percent from 1999. Although home access in France grew 60 percent, it continues to lag behind both the UK and Germany. Australian access is similar to the States.

While more U.S. consumers access the Internet at home than do other consumers, they are spending less time on the Net each week compared to 1999 – about 1 hour less per week on average. Even with these changes, consumers in the U.S. continue to spend more hours per week on the Internet, on average, than consumers in Europe (4.2 vs. 3.2) and Australia (3.6).

Broadband Not Being Used Broadly

Analog telephone lines are still the predominant mode of Internet access from the home, with the exception of Germany: 85 percent in the U.S., 97 percent in Australia, 87 percent in the UK, 84 percent in France and 47 percent in Germany. Germans exhibit a need for speed, with 48 percent accessing the Net with a broadband connection, particularly ISDN at 38 percent.

With the notable exception of Germany, very few Internet users are taking advantage of the faster broadband access methods available to them. Half of the Germans who are aware that ISDN lines are available are using these as their primary source for accessing the Net, and 19 percent who are aware of cable modems are using them as their primary access method.

Very few Internet users in other countries, who are aware of broadband access methods, are using one of those methods as their primary source of access – 14 percent in the U.S., 3 percent in Australia, 12 percent in the UK, and 20 percent in France. The cost associated with broadband access is the main reason consumers are not using these methods. Consumers also feel that these faster, more expensive methods are not needed, as they are satisfied with their current Internet connection.

“Broadband use is growing but not at the rate once anticipated, particularly in the U.S. The industry needs to show consumers that broadband’s benefits outweigh its costs. Providers should look to Germany as a prime example of how to sell the benefits of ISDN usage,” said Robert Boyle, European Leader, PricewaterhouseCoopers Entertainment & Media Practice. “To spur adoption, broadband providers need aggressive marketing to change the way their customers perceive this technology,”

When Surf’s Up, Sets Are Off

Similar to the findings of the 1999 survey results, if they did not have Internet access at home, more consumers would be watching TV and/or reading. Mentions of TV viewing declined among Americans and Europeans (especially the Germans), but it continues to be among the more popular activities.

Other popular non-Internet related pastimes in all five countries include working on or around the house and playing sports or other recreational activities. Although mentioned by few, more Americans this year would spend time with family and friends if the Internet was unavailable (8 percent, up from 3 percent last year), while the opposite is true for Europeans.

The survey also shows us that Internet users are heavier media consumers. In general, most adults spend a substantial amount of time in a typical week reading the newspaper, watching TV, listening to the radio or listening to music. Reading books or magazines and watching movies are done less often. However, among those consumers who are heavy Internet users (spending 5 or more hours/week online at home), the hours spent consuming all media in a typical week is higher on average than for those consumers who spend less than 5 hours/week online – 9.4 vs. 7.7 hours. Therefore, heavy Internet users are also heavy media consumers overall.

“Instead of cannibalizing consumers from traditional content providers as has been feared, the Internet is actually increasing the amount of time consumers spend with audiovisual and printed material – both on- and off-line,” said Martyn Mitchell, Australian Leader, PricewaterhouseCoopers Entertainment & Media Practice. “This is good news for content providers

overall, and bodes well for increased cross pollination between the Internet and traditional forms of media and entertainment.”

To DTV or Not to DTV?

Digital TV continues to be a mystery, yet it is something more people want. Familiarity with Digital TV/Service has not changed among consumers in the U.S. (76 percent) or the UK (93 percent). However, the French are more aware (63 percent, up from 45 percent) and the Germans are less aware of DTV (74 percent, down from 79 percent), compared to 1999. Australian awareness stands at 80 percent.

As in 1999, very few consumers (2-6 percent across all countries) responded that they know alot about the technology. The survey shows that men, those making \$50K or more per year, or those aged under 55, are more knowledgeable about DTV than their counterparts.

Twice as many consumers in Germany, the UK and the U.S. own a DTV this year as compared to 1999. The penetration of DTV, although increasing, continues to be low overall. DTV/Service is most prevalent in the UK (22 percent) and the U.S. (14 percent).

Despite confusion over the technology, DTV purchase intentions are increasing, but continue to be low overall. Compared to 1999, more consumers this year indicate they are likely to purchase DTV in the next 12 months – 24 percent in the U.S. and Australia, 32 percent in the UK, and 19 percent in France and Germany. Similar to 1999, most consumers do not see the need for this technology and continue to cite costs as the major deterrent to purchase plans.

About PricewaterhouseCoopers

PricewaterhouseCoopers (www.pwcglobal.com) is one of the world's leading professional services organizations. Drawing on the knowledge and skills of 155,000 people in 150 countries, we help our clients solve complex business problems and measurably enhance their ability to build value, manage risk, and improve their performance. The PricewaterhouseCoopers Entertainment and Media Practice addresses business challenges for its clients including: developing business strategies to leverage digital technology; marketplace positioning in industries characterized by

consolidation and convergence; and identifying new sources of financing.

Full results of the *2000 PricewaterhouseCoopers Consumer Technology Survey* may be obtained by clients through their client service team. The survey can also be purchased for \$300. For a copy of survey results, please contact PricewaterhouseCoopers at 212.597.3737 or convergence@us.pwcglobal.com.